PR-1. 3-PHENYL DERIVATIVES OF TRANS-2-(ARYL/PYRIDINYL)VINYL-3*H*-QUINAZOLIN-4-ONES: SYNTHESIS AND FLUORESCENT PROPERTIES

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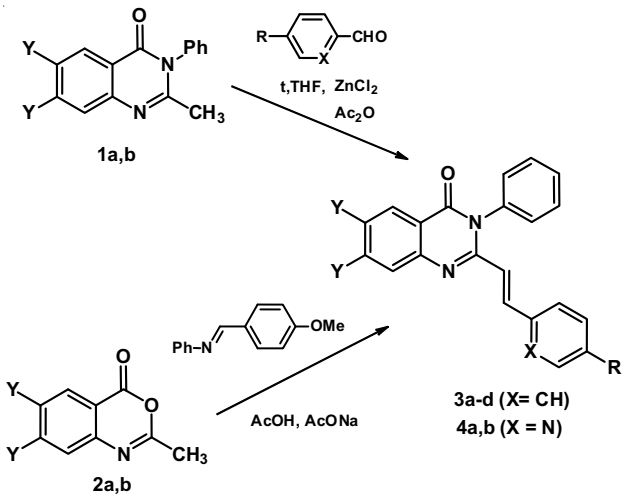
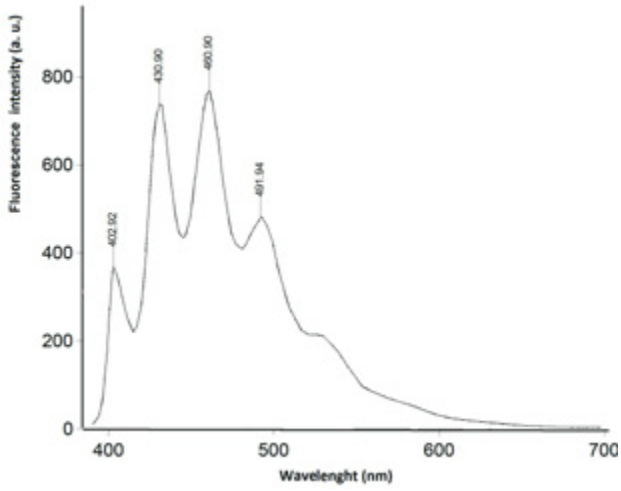
The creation of luminescent molecules that contain the styryl moiety is an active field of research in organic chemistry; photophysical properties of some styryl substituted benzodiazines have been intensively studied [1, 2].

trans-2-(Arylvinyl)-3*H*-3-phenylquinazolin-4-ones **3 b, d** and 3-phenyl-*trans*-2-[2-(pyridin-2-yl)vinyl]-3*H*-quinazolin-4-ones **4 a, b** have been obtained by the condensation of 2-methylquinazolinones **1 a, b** with *p*-nitrobenzaldehyde or pyridine-2-carbaldehyde on heating in tetrahydrofuran in the presence of $ZnCl_2$ and acetic anhydride during 5–6 h in 59–71 % yield. The synthesis of derivatives **3 a, c** was achieved by refluxing 2-methyl-3,1-benzoxazinones **2 a, b** with Shiff base 4-$MeOC_6H_4$–CH=N–Ph and sodium acetate in acetic acid during 6 h in 50–75 % yield.



1, 2, 4: Y = H (**a**), F(**b**).
3: Y = H, R = OMe (**a**), NO_2 (**b**); Y = F,
R = OMe (**c**), NO_2 (**d**)



Emission spectra of quinazolinone **4 b**
at T = 77 K
in 2-methyltetrahydrofurane

3-Phenylderivatives bearing nitro-group at aryl fragment (**3 b, d**) show red shift of emission bands compared with analogs bearing methoxy-group (**3 a, c**). The change of methoxyphenyl fragment by π-deficient pyridyl (compounds **4**) leads to blue shift of emission band. Rather low luminescence intensity of compounds **3, 4** in solutions is related to the occurrence of (*E*)-(*Z*)-isomerization. Spectra of absorption and emission of these compounds have been registered in 2-methyltetrahydrofurane at 293 K and 77 K. Spectra of emission of some quinazolinones at low temperature are presented at least by three lines unlike those at room temperature. Under low temperature intensity of a luminescence essentially increases.

References

1. *Achelle S.*, *Rodríguez-López J.*, *Robin-le Guen F.* Synthesis and Photophysical Studies of a Series of Quinazoline Chromophores // J. Org. Chem. American Chemical Society. 2014. Vol. 79, № 16. P. 7564–7571.

2. Functionalized Quinazolines and Pyrimidines for Optoelectronic Materials / G. N. Lipunova [et al.] // Curr. Org. Synth. 2018. Vol. 15, № 6. P. 793–814.

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